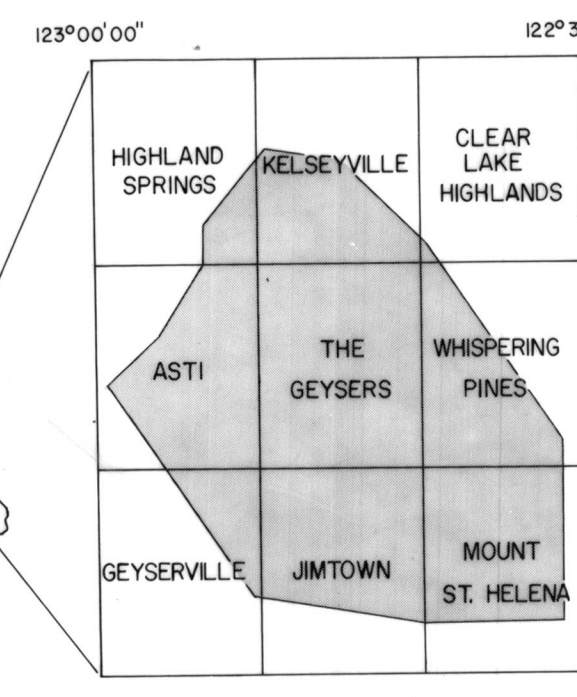
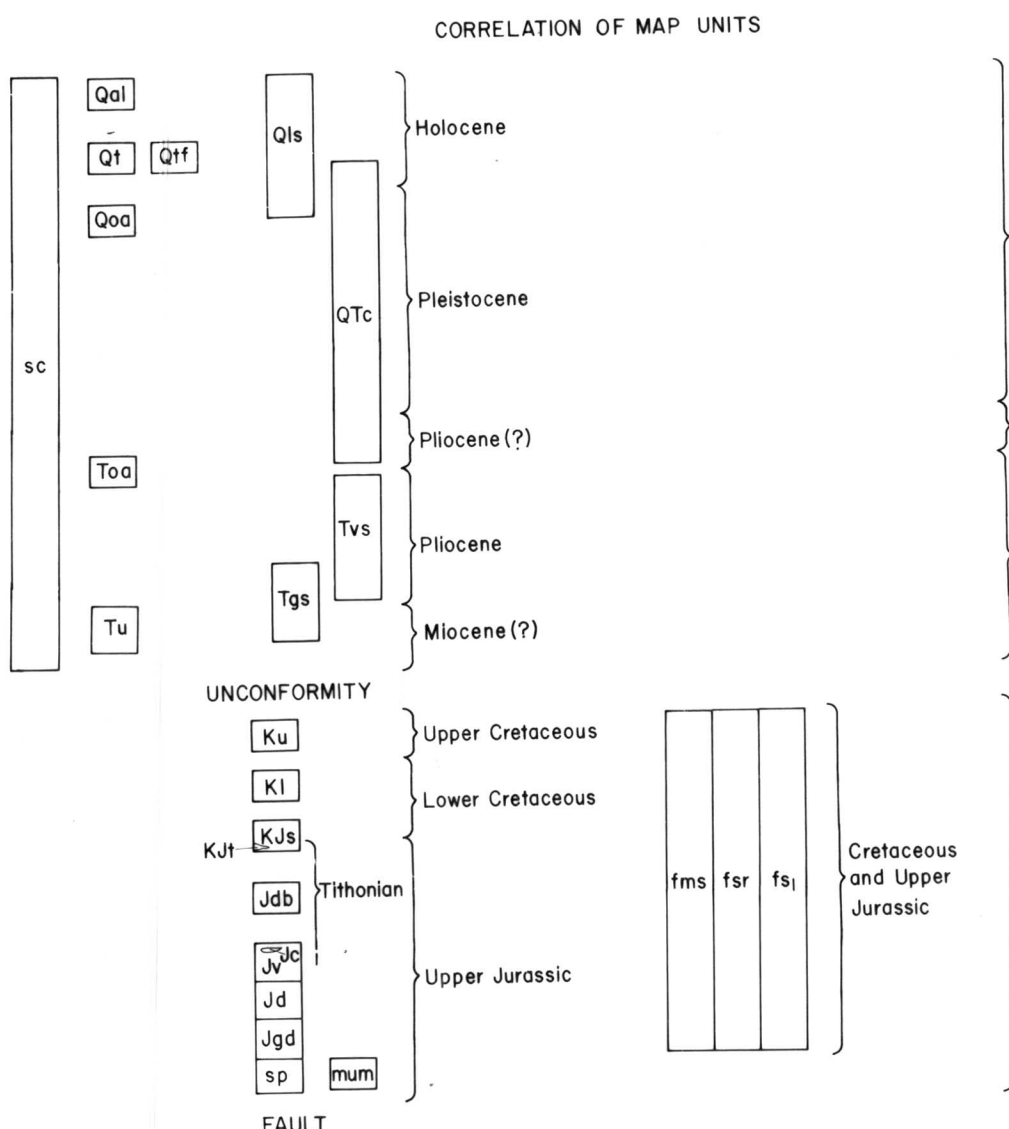


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY



Index to U. S. Geological Survey 7 1/2' quadrangles
showing location of map area



INTRODUCTION

This preliminary geologic map and accompanying structural map, prepared as part of the geomorphic research efforts of the U. S. Geological Survey in The Geysers-Clear Lake area, supersedes previous open file maps 76-2231 (Goff and McLaughlin, 1976), 75-180 (McLaughlin, in press), and 74-2318 (McLaughlin, 1974). The map depicts previously undetermined block and duplex structures in this region, and encompasses the probable extent of the vapor-dominated part of The Geysers geothermal system and the main area of present geothermal development. The Clear Lake Volcanics is partly controlled by Hearns, Donnelly, and Goff, 1976.

Rocks stratigraphically below the Great Valley sequence are correlated with a deformed sheet of ophiolitic rocks (Coast Range ophiolite) that forms the upper plate of the Coast Range Thrust along the west side of the Sacramento Valley (Bailey and others, 1970). The fragmentation and age relations of rocks above and below this ophiolite succession in the map area, and its correlation with the Coast Range ophiolite are discussed elsewhere by McLaughlin and Passaglia (in press). The localities of fossil collections referred to herein, are also discussed in more detail by McLaughlin and Passaglia (in press), and paleontologic data from two localities of *Calaverita* in the Franciscan assemblage containing Jurassic radiolaria and Triassic conodonts were obtained from V. Seiders (unpublished data).

The Franciscan and Great Valley sequence are here divided into a series of fault bounded structural units based on lithologic differences and upon the scheme of textural zonation developed for progressively metamorphosed Franciscan sandstone terranes north of Clear Lake by Blake and others (1967). In the area studied by Blake and others (1967), the gradational textural change from a weak metamorphic fabric (textural zone 1) to structurally low Franciscan sandstones, to a moderate to highly foliate metamorphic fabric (textural zones 2 and 3), in structurally higher sandstones was demonstrated to occur gradually over several kilometers within structurally unbroken Franciscan rocks. However, in the central Mayacas Mountains these gradational textural changes are locally abrupt and out of sequence due to late Tertiary and Quaternary thrusting and strike-slip faulting, probably associated with the San Andreas fault system.

DESCRIPTION OF MAP UNITS

[illegible]

GEOLOGY MAFFED IN 1973-77

PRELIMINARY GEOLOGIC MAP AND STRUCTURAL SECTIONS
OF THE CENTRAL MAYACMAS MOUNTAINS AND THE
GEYSERS STEAM FIELD, SONOMA, LAKE,
AND MENDOCINO COUNTIES, CALIFORNIA

BY ROBERT J. MCLAUGHLIN
1978